Case Study: Server Migration to Virtualized Environment (KVM)

Virtualization technologies have been gaining popularity. Leading organizations across numerous domains have found that effective server virtualization directly addresses each of the challenges IT administrators face with physical server management.

A Scotland based company operating across Europe were planning to move to virtualized environment, and contacted TBS through one of our contacts in a European datacenter.

There had been a discussion going within their IT team to choose from different virtualization platform providers like Vmware, Microsoft or KVM1 from Redhat. TBS provided the client with expert consultancy in finalising their decision on which virtualization platform should be used.

The client decided to go with KVM for various reasons as such.

KVM is OpenSource

KVM has greater mindshare because KVM is opensource and part of the linux code base. This mindshare means that it will have more eyes looking at it and contributing to it. Apart from the direct benefit of faster development, this means the platform will be under more scrutiny and therefore higher quality. This is a fundamental benefit of the opensource development model.

KVM has got Industry Support

KVM is supported by major industry players such as IBM, Cisco, Intel, AMD, Redhat and Novell among others. The support of such companies to an opensource project cannot be understated.

KVM is a bare Metal Hypervisor

The days of expensive “bare metal” software hypervisors like ESX are gone, thanks to the chip makers commoditizing virtualization technology. KVM has access to the hardware and is a “bare metal” hypervisor.

BenchMark

Redhat claimed that its recently acquired KVM can run 5 vms for every 3 that ESX can run when compared on the same hardware. When compared with Citrix Xenserver, Citrix performs even worse[2].

TBS were selected as a supplier of the new solution because of our commitment to the open source community, our in-depth knowledge and experience and expertise of the Linux and Linux based Virtualization container KVM and our proven pre-existing solution.

Refer:

1. KVM (for Kernel-based Virtual Machine) is a full virtualization solution for Linux on x86 hardware containing virtualization extensions (Intel VT or AMD-V).
2. http://www.theregister.co.uk/2008/09/10/run_more_vms_with_red_hat_than_vmware/

Process

TBS performed an analysis and survey on all of the machines running in their environment and calculated resources used for each machines.

TBS prepared a report based on their analysis about the physical servers running in their environment and applications running on those servers.

Based on the report a dependency list was prepared as to what needs to be installed and configured before we start the final migration. We started with one machine 1st and tested everything thoroughly after migration. Once satisfied with the results we moved on with other machines migrations followed by a complete test.

The survey and analysis helped in charting out an end-to-end functional work-flow to understand how the business operates in terms of OS use. Each activity in the process was drilled down to mark necessary human tasks and automate all tasks wherever possible.

The project was delivered against very tight time-frames using an on-shore/off-shore model, where off-site resources were managed directly by on-site team members.

Implementation

The migration job was implemented after the test migration was complete. TBS backed-up up all the required application/data before starting the migration.

Features

Improved Efficiency – The server footprint was reduced by the presence of virtual servers in a data center. With the help of virtualization technology, better space management was made possible and there was a resulting drop in the power consumption & need for cooling solutions. These changes paved the way in saving costs for the organization.

Faster Server Deployment – Virtual servers can be easily reduplicated and so they allow fast deployment in the server environment. This improved the work environment for the IT department: allowing for quick & efficient workflows and thus making way for speedy growth of the company in this highly competitive world.

Automated Tasks – Virtualization allowed the client to automate a number of significant routine IT tasks. Something as simple as Operating System patches became much simpler and quicker.

High Application Availability – Purchased separately, high-availability infrastructure remains complex and expensive. But KVM developers have integrated robust availability and fault tolerance right into the platform to protect all clients' virtualized applications. Should a node or server ever fail, all its VMs are automatically restarted on another machine, with no downtime or data loss.

Wizard-based guides for ease of Installation – KVM's wizard-based guides take the complexity out of setup and configuration. This reduced the deployment time by two thirds against other solutions.

Higher Reliability and Performance – KVM platform blends CPU and memory innovations with a compact, purpose-built hypervisor that eliminates the frequent patching, maintenance and I/O bottlenecks of other platforms. The net result is best-in-class reliability and consistently higher performance; for heavy workloads.

Affordability – KVM is the highest in capabilities, but zero in cost. KVM comes with zero price and with greater performance—delivering the industry's lowest total cost of ownership (TCO).

Achieved Business Goals

Improved Flexibility – Virtualization allowed the customer to be more responsive to the business. Virtual server deployments literally reduced the time to deploy a server to minutes compared with days or even weeks for a physical server deployment, meaning that time to market is now significantly reduced. Virtualization also decoupled the server hardware from the application, meaning maintenance of legacy applications is greatly simplified.

Reduced Cost – The cost was reduced immediately by removing multiple physical machines from data center.

Greater Redundancy – Virtualization helped the customer to improve the uptime of their servers. These technologies also allowed greater safety and security while reducing the points of contact.

Reduced Downtime Effects – A Virtual server acts as connote for efficient back-up and this enabled the business to improve their planning for disaster recovery.

Scalability – Increased ability to quickly scale up and down as required.

WHO WE ARE

Established in 2004 by the Directors of Technology Blueprint Ltd. - a UK-based software services and infrastructure consultancy company - Techblue Software PVT Ltd (TBS) has a proven track record for delivering quality, innovative and intuitive software, consultancy and support to companies operating throughout the UK, the USA, Europe, the Middle-East, and India. Operating from our premises opposite Cyber City, Gurgaon, India, we specialize in open source technologies, Linux, MySQL, Java, Asterisk/VOIP, Cordova, Liferay, eCommerce and web development. We deliver significant value to our customers by providing cutting edge technology solutions, project management expertise, analysis of projects at business & commercial level and above all a strong code of ethics & an unwavering commitment towards customer excellence.